Developing a Business Plan for a new start-up: The case of a laser scanning service company

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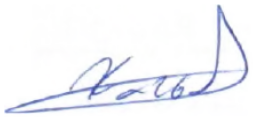

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Abstract

This dissertation was written as part of the MSc in Business Administration at the International Hellenic University.

This business project will outline the scope and future operation of a new start-up company, the competition, the market, and the financial outlook of the proposed business in 3D Laser Scanning Services. The company will provide professional Business-to-Business Laser Scanning Services.

At the beginning of the thesis, the organization is introduced by presenting information about the company's mission, the management, the personnel, the business model and the location. Also, the business risks are identified and the company's internal and external environment is analyzed. Subsequently, an extensive research of the global and Greek market is presented, and the industry is analyzed by PEST and Porter's five force analysis. The suggested marketing mix describes the proposed strategies in sales, advertising, positioning and pricing. Finally, in the financial plan section, the required investment is being calculated, and the five-year pro forma income statements, cash flow statements and balance sheets are presented.

At this point, I would like to express my warm thanks to my supervisor, Dr. Stavroula Laspita, for her guidance and helpful comments that improved my thesis, and to the General Assembly of the School of Economics, Business Administration and Legal Studies for giving me the opportunity to finish this thesis.

Last, I am using this opportunity to express my gratitude and respect to my lovely wife Maria Mitraka for her constructive criticism and the patience she showed throughout my MBA course.

This thesis is dedicated to my beloved daughter Alexia-Helga.

Keywords: (Business Plan, Services, Marketing Plan)

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1. EXECUTIVE SUMMARY

ALLVIEW is an innovative, dynamic start-up company providing outstanding 3D Laser Scanning Services that will establish the company as customers' first choice for as-built documentation services in Greece.

3D Laser Scanning systems primarily capture the physical position of a target object, and represent it as a series of points (forming a "point cloud") typically in Cartesian coordinates (XYZ). The point cloud can be further used for various applications such as linear, area and volume measurements, creation of as-built 2D drawings and 3D models, changes monitoring, and BIM modeling. In addition to data capturing, ALLVIEW will offer comprehensive engineering consultancy services in a wide area, from the conceptual design to the project implementation, adding value to each stage of a project. This holistic approach of Laser Scanning and engineering consultancy is nowadays rare in the Greek market, and gives the company enough space for growth.

The founders of the firm are Kyriakos Kouknakos, Panagiotis Kouknakos and Joannis Kafestidis, three professional civil engineers, with over 20 years of progressive and responsible presence in designing infrastructure projects, in business development and in software development. They have all the necessary managerial knowledge, skills and ability to align with ALLVIEW's vision. Kyriakos and Panagiotis have already established a technical software firm, offering worldwide its own road and utility design software. Joannis, as former manager director of the Greek subsidiary of a global photovoltaic EPC contractor, has gained widespread experience in various international projects, while also has gained managerial skills during his MBA studies.

Market analysis has showed that the global Laser Scanning Industry presents significant growth rates. The laser scanner production industry is expected to be valued at USD 4.9 billion by 2020, growing at a compound annual growth rate (CAGR) of 12.4 from 2014 to 2020. The 3D laser scanning and modeling software is expected to grow from USD 1.90 billion in 2015 to USD 16.99 Billion by 2020, at an estimated CAGR of 55.0% from 2015 to 2020. The 3D laser scanning service industry was valued USD 1.39 billion in 2015 and is estimated to reach USD 3.22 billion by 2022, at a CAGR of 12.4% between 2016 and 2022.

The aforementioned financial characteristics, the rising complexity of construction projects, the need of precise cost calculations, and the continuous budget reductions in Greece, give the owners the sense that Laser Scanning Services is a rapidly growing market in the country.

The firm's target customers are from the following industries: constructions, engineering services, mining, etc. Unfortunately, the lack of available data for the Greek laser scanning industry forced us to make several assumptions for the competition. For example, it has been found that only a few laser scanners have been sold in Greece, and that the vast majority of Laser Scanner owners are surveyors who work as freelancers. Consequently, it is believed that the major competitor is Metrica SA, with three million turn over for the year 2014.

The company will be financed by the owners' equity with EUR 213,400 for equipment investment and working capital. The revenues will be generated from three main product categories, i.e., services for low, medium, and high complexity projects. The company's revenue from laser scanning activities is expected to grow from EUR 92.500 in the first year to EUR 308,000 after five years.

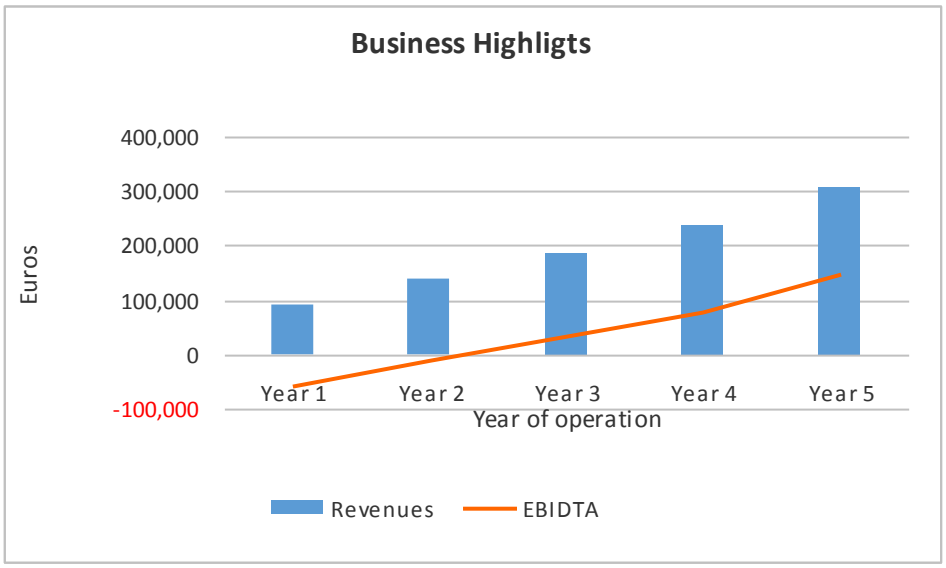


Figure 1: ALLVIES' Revenue and EBITDA of five-year projection

2. INTRODUCTION

This business plan will outline the scope and future operation of the “ALLVIEW” company, the competition, the market, and the financial outlook of the proposed start-up company in 3D (the Dimensions) Laser Scanning Services.

During my EMBA, at the beginning of 2014, I changed my job objective, moving from the photovoltaic industry into the field of civil engineering, and specifically the designing of utility infrastructure projects (water supply and wastewater networks). In this course, I joined an existing designing office of an old colleague and friend, with whom we now work together as freelancers.

Our customers are mainly municipalities and some construction firms, which construct infrastructure projects. Due to the economic crisis in Greece, many projects have been cancelled or postponed for better days, while for the few projects that are still ongoing, the competition has raised and the prices have fallen extremely. In order to save operating cost, we searched in the market for new survey techniques, and we came out with the 3D Laser Scanning, which is a new and efficient method for digitizing large objects and entire scenes, instead of using traditional survey methods.

3. DESCRIPTION OF THE COMPANY

ALLVIEW is a star up company in Greece, providing 3-Dimensions Laser Scanning services. In addition to the highly accurate capturing and documentation services, ALLVIEW will also provide comprehensive engineering services in the civil engineering infrastructure sector.

3.1 COMPANY BACKGROUND

As it has been mentioned in the introduction, the company will be a merger of three professional civil engineers, who are currently working together as freelancers in common public infrastructure projects, mainly road design, flood control and river training, and utility networks like water supply, wastewater networks and irrigation networks.

Recognizing the new market potential of Laser Scanning, they took the decision to enter in this market and add to their range of services, new core activities in a different engineering area, and more specifically in the architectural, industrial and shipping industry. The core product in this new venture attempt will be a holistic scanning-engineering approach from data capturing to engineering consultancy.

3.2 3D LASER SCANNING TECHNOLOGY

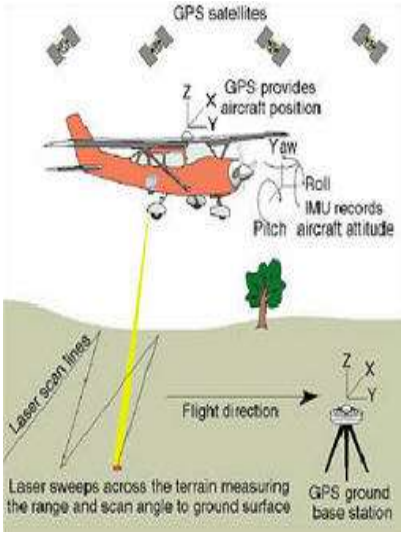
3D Laser Scanning (3DLS), also referred to as LiDAR (Light Detection and Ranging), is a surveying technique, where a surface is scanned using laser technology. In general, each surveying task can be divided in three major steps: data acquisition, data treatment and finally the visualization. For Laser Scanning this methodology is also valid. In particular, 3DLS is a data acquisition system that captures high-density three dimensional geospatial data from large-scale, complex entities. Laser scanners are non-contact devices that incorporate two components for data capturing and visualization: a laser and a camera. The laser sends a laser beam all over the field of view. When this beam hits a surface, it is reflected back into the direction of the scanner. In this way, the laser records all physical components in its field of view and assigns to each captured point an XYZ coordinate (as relative position to the scanner), capturing nearly 1 million data points per second. The data appears as a black and white “point cloud”, which accurately represents the surface of the physical objects scanned.

The camera catches real pictures from each physical object for visualization purposes, and renders colour to each point in the cloud.

Collected 3D data may also be useful for a wide variety of applications other than the infrastructure projects. By further research, we found that in addition to the typical survey that we were looking for, Laser Scanning may be applied in a broad range of sectors. Building and construction, oil and gas industry, archaeology, coastal, transportation, forestry, infrastructure, transmission lines, defense and aerospace, mapping and cartography are the major application areas for 3DLS technology, and will be further analyzed in the following paragraphs.

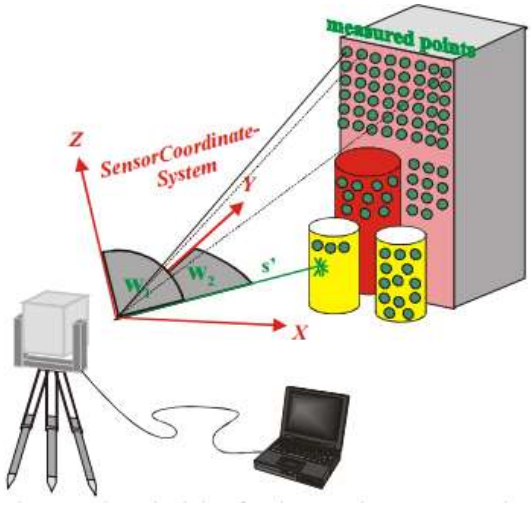
The 3D Laser Scanning services and the relating hardware can be divided in three main categories according to the application:

1. The Aerial Laser Scanning system. In this category, the 3D terrain models can be created by aerial scanning systems, which are based on satellite and aerial imagery. The scanner system, which is mounted on small aircrafts or helicopters, emits laser pulses at a very high repetition rate, nearly 10.000 measurements per second, each of which hits the ground surface and reflects a portion of its energy back to the sensor. The scanner's receiver detects this reflectance, and a computer calculates the distance between the ground and the scanner by measuring the intensity of the return signal, and the time the signal took to return. Together with other data from other devices such GPS (Global Position System) and INS (Internal Navigation System) a 3D terrain model can be created. The main applications of Aerial Laser Scanning are the large scale surveys, agricultural and forestry applications, corridor projects like power lines, pipe lines, roads, costal monitoring, etc.



Picture 1: The principle of airborne laser scanning (http://aeromapss.com/)

2. The Terrestrial Laser Scanning is the most common laser scanning technology. The laser scanner is fixed on a tripod and collects data from all the visible objects around it. The scanner turns automatically around itself and so it can capture a horizontal field of view of 360° and a vertical field of view of 270-315°. The system is extremely accurate, capturing data at ±1.0 mm accuracy at a distance of up to 120 m. The range of applications for the Terrestrial Laser Scanning system is unlimited. The main application areas are in Architecture and Civil Engineering, in Oil-, Gas- and Process Industry, in Archaeology, in Facility Management, in Mining and many more others.



Picture 2: The principle of a Terrestrial Laser Scanner (Staiger, 2003 http://www.spatialhumanities.de/)

There are many producers of terrestrial laser scanners but the most popular commercially are those from Leica Geosystems, Faro, Trible and Riegl. The laser scanner producers usually provide their own software for registration and point cloud management and processing. As the software is an essential tool in delivering a project, one has to be very careful in the stage of buying the laser scanner and definitely take into account the effectiveness of the associated software. All scanner producers are represented in Greece, and therefore the equipment of choice can be available.

Picture 3: Laser scanners from Leica Geosystems and Faro (source: Companies' websites)

3. The 3D Mobile Scanning System combines both: the accuracy and the attention to detail of the terrestrial scanning system, along with the high acquisition rate and the scope of the aerial laser scanning technologies. One or more laser scanners are mounted on a vehicle, mostly on a car, and together with further positioning systems such GPS, INS and odometer makes it possible to collect geospatial data while driving. Nowadays, new lightweight laser scanners can also be mounted on unmanned aerial vehicle (UAV). The main mobile's laser scanning applications are civil engineering in road design, traffic and other urban planning, 3D city modeling and power lines surveying.

Picture 4: Principle of Mobile Scanning System (http://www.mitsubishielectric.com/)

This Business Plan will focus on the Terrestrial Laser Scanning business, because it is the most common laser scanning technology, has a wide range of application, and fits best to ALLVIEW's customer's needs and its founder's background.

3.3 MISSION, VISION

ALLVIEW's mission statement will be: ALLVIEW will lead the Laser Service industry in Greece, in providing from on-site data capturing and laser scanning services, to a variety of post processing services, including 3D and BIM modeling, CAD drawings, as well as engineering consultancy for contractors, designers and real estate clients, by practicing the company's philosophy "We help our clients to emphasize on their project". Through our engineering expertise, our software development capabilities, and by using high-end technology and latest software, we will meet our client's expectations every time. We will also focus on providing opportunities for further employee's development in order to produce healthy financial growth and a well established venture in our region.

ALLVIEW's vision statement will be: ALLVIEW's vision is to be Greece's first choice for as-build documentation services.

Our slogan will be: "We capture the present helping you to shape the future".

3.4 BUSINESS MODEL

The company aims to provide Business-to-Business Laser Scanning Services. The course of the necessary activities in order to succeed in this venture is as follows. As a first step, markets and segments of costumers with similar needs have to be identified. After the choice of markets it will enter to, and the costumer type it will serve, the company has to understand what the value requirements of its customers are. The term value requirements refers to the success factors such as quality, reliability, price, time, etc., which are important during the costumer's buying decision process.

Subsequently, it is very important to understand the competitor's position in the industry. This helps the company to better understand current customer's value requirements, and it involves looking into the future to predict how competitors might improve. This is clearly a factor in planning how the company is to respond. (Malcolm McDonald, 2011).

Knowing the relative attractiveness of the different markets or segments, customers' needs and competitor's position, ALLVIEW can determine where to prioritize in order to create healthy revenues. The next diagram addresses how ALLVIEW will create value.

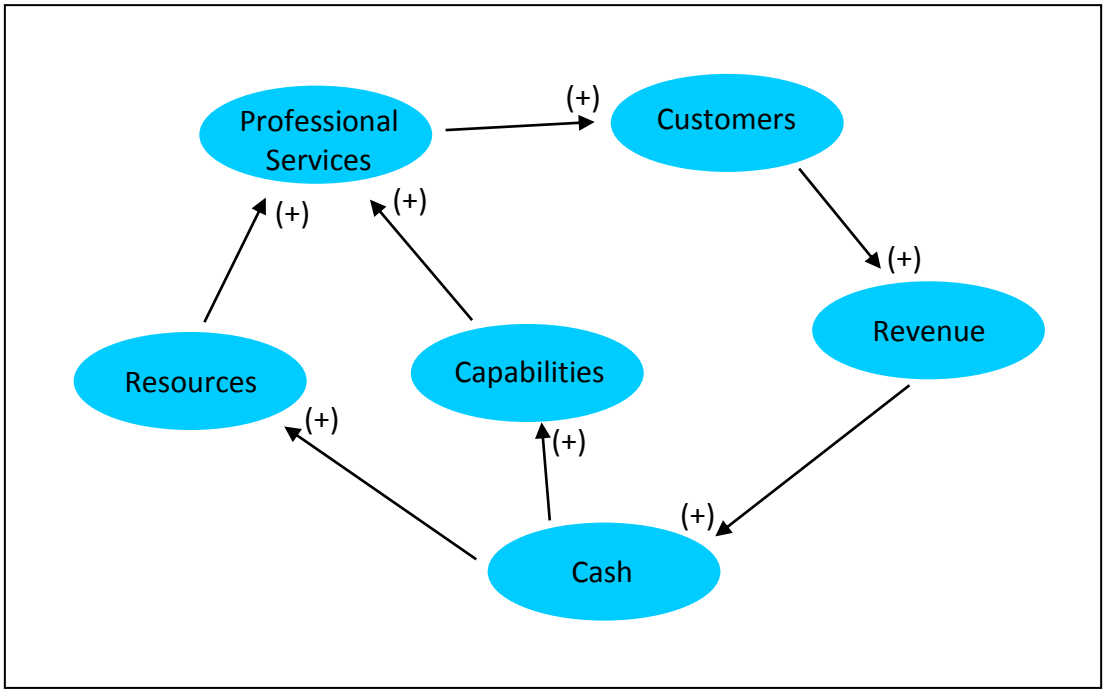


Figure 2: ALLVIEW's Business Model and value creation

The diagram depicts that resources and capabilities add new products in the offered product range, which lead to new customers, which lead to more product sales, which leads to revenue, which provides cash. The cash is then used to buy more resources and build new capabilities, which again can be used to design new products. (Grasl O., 2013). In case of ALLVIEW, the Capability is the Know-How of the offered service, and the Recourses are the Talents of its personnel. It is easily understood that the Know How is being positively influenced by each and every project the firm delivers to a customer, as the experience gained from each project enhances the Know How. So for a start-up company, the lack of a significant experience will influence its strategy to enter in the specific market.

3.5 SWOT ANALYSIS

The following SWOT analysis helps the company to understand its internal strength and weaknesses, and to identify the opportunities open and the threats it face.

Strengths	
S1	Organization's strong and clear Mission and Vision. The Company has shaped its Mission and Vision and knows how will operate to achieve its scope.
S2	Brand Loyalty. ALLVIEW is a new company but its founders already operate in similar niche markets, and have gained good reputation.
S3	High service performance by excellent engineering services and software development background
S4	One-Stop-Shop. Holistic approach of Laser Scanning Services
S5	Access to educational institute for recruiting talents.
S6	Existing professional network in South East Europe. Possibilities of potential expansion in neighbor countries.
S7	Financial position. ALLVIEW investment will be financed from equities.
Weaknesses	
W1	Lack of Know-How in Laser Scanning process.
W2	Lack of trained staff to serve Laser Scanning Services.

W3	Fear of introducing a new service in Greece.
W4	Capital intensive investment.
Opportunities	
O1	Possibilities of Potential Expansion in neighbor countries.
O2	Outdated measurement methods in Greece. General contractors have significant operational and technological disadvantages against international competition.
O3	Market gap on holistic Laser Scanning Services in the region.
O4	Minor Competition.
O5	Timeworn industrial, governmental and educational buildings.
O6	Lot of procurements for asset privatizations by the Hellenic Republic Asset Development Fund.
O7	Lot of Mergers and Acquisitions by international companies.
O8	Real Estate legislation in Greece. Law 4178/2013 for illegal construction gives the opportunity to scan many illegal constructions.
O9	Necessity of digitalization and mapping of infrastructure projects - Recognition from the public authorities.
Threats	
T1	Greece Financial Depression & Crisis.
T2	Government restrictions and lack of political stability.
T3	Unstable Tax issues.
T4	Recession on the Construction industry.

From the above SWOT analysis the firm can now create feasible alternative strategies by combining its strengths and weaknesses with the opportunities and threats (SO, ST, WO, WT strategies). From the developed strategies, the management will select some implementation.

3.6 LOCATION

ALLVIEW will be located in the town of Serres, in Northern Greece. The location has been chosen because of the company's owners firm belief, that engineering services are provided from the office and not near to clients. The product the company offers is more than 90% office activity. Furthermore client's objectives and assets for scanning are distributed all over Greece, which makes it impossible to find a single place that would be near to all potential customers.

Another reason that Northern Greece was chosen as the operation location is that the most operating scanners in Greece are located in Athens. This gives us a cost advantage (travel expenses) against our competition for projects in Northern Greece and Southeast Europe.

On the other hand, according to SBA studies, the fact that Serres is poor in terms of Income per Capita and has a very low contribution in Greece's GDP, could be a disadvantage, since those factors are among the major causes of all business failures (Entrepreneur, 2016). But as the company will rarely be visited by its customers, this disadvantage can be overcome by an ongoing effort to let customers know where we are located. Furthermore, there are already some well known companies in Serres with international business, which turns Serres into a not unknown business location.

In terms of attracting foreign collaborations, the macroeconomic data in Greece, in comparison with the neighboring Albania, FYROM, Bulgaria, Serbia and Monte Negro (target countries for future business expansion), do not support the implicit choice of the country as the best option for an investment, however it cannot be neglected that Greece's economy is 6 times larger than Bulgaria's and 25 times larger than Albania's. The debt crisis induced significant changes in the structure of the country's economy, which will trigger the necessary growth in the next few years. Greece has already escaped the danger of exiting the euro zone, and exhibits the first signs of economic recovery. The equity market and the banking system exhibit a higher maturity than in Bulgaria and Albania. The banking system is undergoing a major reform, and is expected to stabilize after finalizing the appropriate mergers, while the equity market is fully automated, with high capitalization. The use of the Euro, provides the proper currency stability and allows for smooth transactions with the EU.

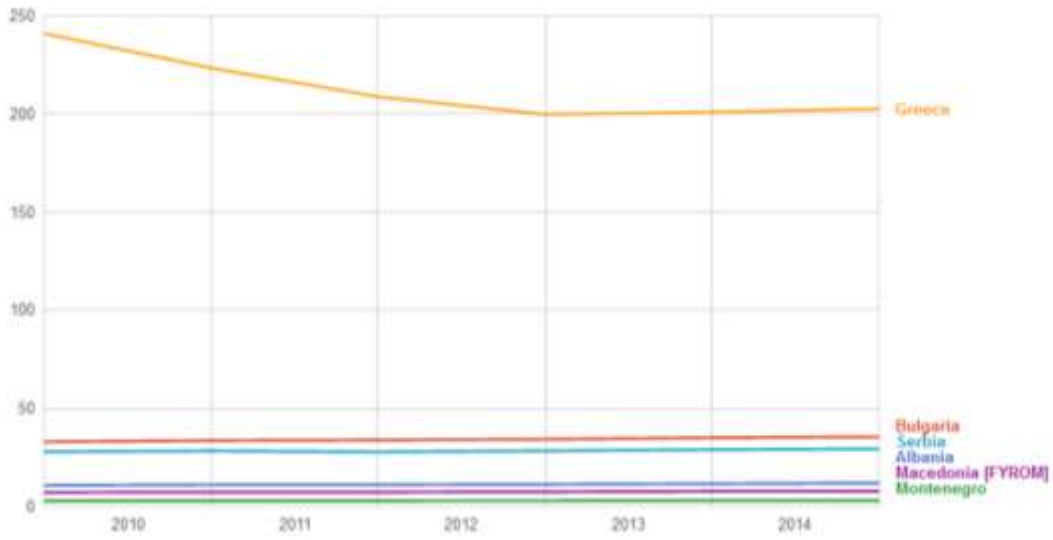


Figure 3: GDP comparison of the countries of interest (source: Google/publicdata)

3.7 BUSINESS RISKS AND INSURANCE

Every company is faced with certain risks. The main categories are strategic, financial, and operational risks.

- The strategic risks rise when the company's strategy becomes less effective. That means the company is unable to reach its goals due to changes in the industry environment like new competition, technological changes, political decisions etc. In order to minimize the strategic risk, ALLVIEW will continuously scan the environment in which it operates and will evaluate and review its business goals.
- Operational risk refers to an unexpected failure in the company's day-to-day operations. Although ALLVIEW has no machinery or other technical equipment except the computers and one laser scanner, the company will have a maintenance schedule for each device, and keep a log book with all the scheduled works. Another operational risk involves personnel failures which can be handled by setting standard procedures like ISO 9001.
- Financial risks have the most profound impact, as they are producing cost and/or losses revenues. Cost is generally produced by the company's internal issues and in order to control it before it is produced, ALLVIEW will develop appropriate

procedures. Losses of revenue is an external risk and very difficult to prevent. For this reason, ALLVIEW will try to evaluate the clients by their reputation and bankability.

3.8 ORGANIZATIONAL PLAN

ALLVIEW' will have a functional type organizational structure which is presented in the following figure. A functional is the most widely used because this structure is the simplest and least expensive than other. A functional structure groups task and activities by business functions, such strategy, marketing and others (David F., 2013).

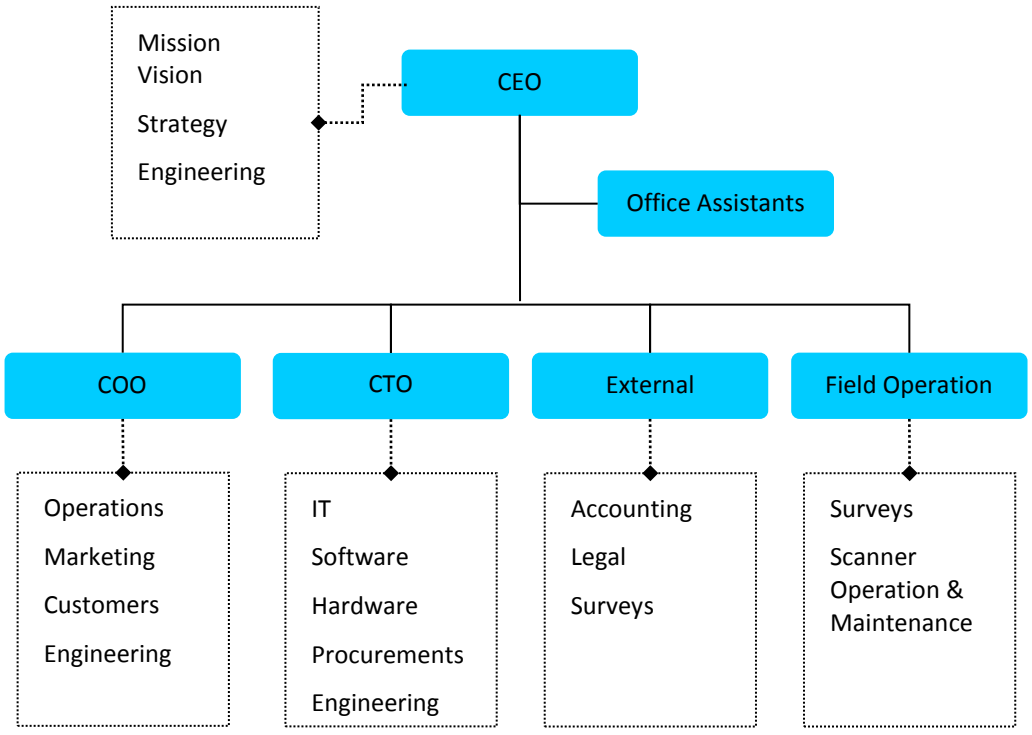


Figure 4: ALLVIEW's organizational structure

3.8.1 MANAGEMENT

ALLVIEW's managerial level is consisted of experienced professionals with high sense of duty and mutual respect. The management team comprises the three founders, with their sort resumes previously presented. The management's team responsibilities are as follow:

- Kyriakos Kouknakos, in the position of CEO. Kyriakos, is a very well educated visionary person, with the ability to take timely action based on the environmental factors at

work, the ability to trust others and with excellent communication skills. Kyriakos was born on 1968 in Serres, and has studied civil engineering in Aristotle University of Thessaloniki. He has more than 20 year's professional experience in civil engineering and software development. He was a senior road designer engineer for several years at Makedoniki Meletitiki EPE, a well established design engineering company. Since 2008 Kyriakos works as freelancer. He is an expert in road design and corridor projects, and has excellent knowledge in software development. KK was for several years a teaching assistant for road design at Technological Educational Institute of Central Macedonia in Serres.

- Panagiotis Kouknakos, in the position of CTO. Panagiotis is the youngest member of the team and he is the person who always knows everything in technology issues. Further more his is a software developer and his creative and analytical skills are very high. Panagiotis was born in 1975 in Serres, and has studied civil engineering in Democritus University of Thrace. Early after his graduation he worked as a software developer in a civil engineering software company in Athens. Since 2010, Panagiotis work as software developer on civil engineering software solutions in Serres. Under the brand name "DIOLKOS" (www.diolkos3d.com) Panagiotis and Kyriakos have developed two state of the art software solutions, in road design and in utility network design. The road design software is used by over 100 designing offices, 4 universities, in 10 different countries. The utility network design software is a new product and has already gained the respect of several Municipal Enterprises for Water Supply and Sewerage (DEYA) in Greece.
- Joannis Kafestidis, in the position of COO. Joannis, as former manager director of the Belectric's (one global photovoltiak EPC contractor) country subsidiary, has widespread experience in various international job positions and has managerial knowledge from his MBA studies. He will be the bridge between the visionary leader and the ongoing operation of business. His has teamwork, analytical and problem solving skills. Joannis was born in 1969 in Serres, and has studied civil engineering at University of Karlsruhe in Germany. He has more than 20 year's professional experience in civil engineering and project development.

3.8.2 PERSONNEL

As described on the organizational diagram of the firm in figure 4, additional personnel for the field operations will be needed. Specifically, one surveyor, one assistant surveyor will be needed, and their duty will be to prepare and execute the scanning process, and be responsible for the delivered accuracy. The person for Surveyor position should have following characteristics:

- Technical Institution degree (TEI) in the field of surveying or geoinformatics.
- Preferably professional experience in engineering surveying.
- Practiced dealing with different coordinate systems.
- Versed in the use surveying instruments.
- Very good computer skills and good knowledge in CAD software and in the field of 3D laser scanning are beneficial.
- Analytical and results-oriented approach.
- Independence, reliability, and high level of initiative and teamwork.
- Good English knowledge.
- High flexibility and mobility also for more days.
- Driving license.

The position of the Office Assistance responsibilities will be receiving and distributing communications, maintaining equipment stock take of supplies typing documents, and serving customers. The person for the Office Assistance position should have following characteristics:

- Successfully completed commercial training (IEK).
- Very good English knowledge, spoken and written.
- Very good computer skills (Office suite).
- Communication skills and a good sense of priorities.
- Enjoy working in a team, high level of initiative and strong customer service orientation.

At the beginning, the company will outsource accounting and financial services to external experts. Also legal services for the company's establishment and contracts review will be from external lawyers.

4. MARKET AND INDUSTRY ANALYSIS

4.1 MARKET ANALYSIS

Unfortunately, Greece lacks data, journals, articles and research papers for the 3DLS, out of which we could have taken information regarding the financial data of the particular market. Also, since it is a niche market, global market trends are very poor. The main source of information was several published summaries on the research companies: Markets & Markets and Radiant Insights, as well as on the Globe News Wire. Additionally, some information was taken from the companies that produce equipment for 3DLS; this information gives a very encouraging picture of this particular service market. Therefore, due to the lack of particular to the Greek market information, the business plan focuses on relating markets, i.e., the markets of the customers of the particular Service.

As primary data, my personal participation in a big project with 280 scans will be used. This project was executed from "VIIN GmbH" (www.viin.co) a German pioneer company in the laser scanning service industry with over 14 years of experience. The project had duration of seven days, and I had the opportunity to make in depth discussions with VIIN's CEO about the Laser Scanning market and industry.

Secondary data from the internet are also rare, since laser scanning services is a niche market and global competitors "hide" their financial data. In order to understand the size of the Greek market, some data from ALLVIEW's target industries will be used and some assumptions will be made.

4.1.1 MACRO LEVEL CONSIDERATIONS

Global 3D scanning market involves various segments, based on the scanner production, the scanning and modeling software, and the application services.

The *laser scanner production industry* offers various products depending on the market it serves, such as architecture & construction, automotive, healthcare, defense, geospatial, archeology, and others. Radiant Insights, a market research firm, found that the 3D scanning market is expected to be valued at USD 4.9 billion by 2020, growing at a compound annual growth rate (CAGR) of 12.4 from 2014 to 2020 (see Appendix E). 3D scanning, acts as a

crucial instrument for performing structural and cultural assessments along with supervision on construction activities. The industry is fuelled with flourishing innovation and R&D expenditure. Complex installation process and expensive technology is expected to hamper the demand growth. However, emergence of portable scanners is projected to pose potential opportunities to industry participants. Laser scanner was the foremost product segment and was valued at USD 1,247.4 in 2013. It is estimated to reach USD 2,997.5 million, growing at a CAGR of 12.9% from 2014 to 2020. Further more Radiant Insights reports that Architecture and engineering was valued at USD 221.8 million in 2013. It is likely to reach USD 587.6 million by 2020, growing at a CAGR of 14.5% from 2014 to 2020. The growth can be attributed to application of scanners in archaeology. Europe dominated the global demand with an industry share of 32.65% in 2013 with North America valued at 28.33% for the same year. (Thoras M., 2015)

The *3D laser scanning and modeling software* is being used in multiple industries, and as more companies and markets start to understand the benefits of laser scanners and 3D modeling, the market is expected to keep growing. According to a 2013 the “Markets and Markets”, a market research firm, report “3D Mapping Market: Global Advancements, Business Models, Technology Roadmap, Forecasts and Analysis (2013 – 2018)“ on the 3D mapping and modeling industry, the market for the technology will reach 7.7 billion by 2018 alone and have CAGR of 47.9% by that year (Smartgeometrics, 2014). An updated report “3D Mapping and 3D Modeling Market by Application in 3D Mapping (3D Projection Mapping, Mapping and Navigation, and Others), by Vertical (Healthcare, Building and Construction, and Others), and by Geography - Forecast to 2020" shows that 3D mapping and 3D modelling market is expected to grow from USD 1.90 billion in 2015 to USD 16.99 Billion by 2020, at an estimated CAGR of 55.0% from 2015 to 2020. In 2015, Europe accounted for about 31.48% of the global revenue, and is expected to grow at a CAGR of 51.0% from 2015 to 2020. APAC and North America are estimated to contribute USD 3.60 billion and USD 5.68 billion, respectively, by 2020, at a CAGR of 68.3% and 49.6%, from 2015 to 2020 (Markets and Markets**,** 2015).

According to a new market research report, the report "LiDAR Market by Product (Aerial, Ground-based, and UAV LiDAR), Component, Application (Corridor Mapping, Engineering, Environment, ADAS, Urban Planning, Exploration, and Metrology), Services and Geography -

Global Forecast to 2022", was valued USD 1.39 billion in 2015 and is estimated to reach USD 3.22 billion by 2022, at a CAGR of 12.4% between 2016 and 2022 (Markets and Markets**,** 2016).

According to the reports presented above there is a tremendous growth rate of 55% in the software application segment of 3D laser scanning, and a high growth rate of 12.4% in the laser scanner production and services.

4.1.2 MICRO LEVEL CONSIDERATIONS

There are no data for laser scanning or similar application for Greece. So the market will be analyzed by ALLVIEW's target market segments, where both laser scanning and engineering services are needed.

According to the Hellenic Statistical Authority (see appendix F) for the year 2013, in the *constructions sector* operate in total 26,868 enterprises with EUR 9.02 billion turnover. In the building constructions, the operating companies were 21,565 with EUR 4.65 billion turnover, and in the infrastructure constructions, there were operating 5,303 firms with EUR 4.37 billion turnover.

The bulk volume of the laser scanning services is in the *architectural and engineering sector.* This sector produced a turnover of EUR 2.24 billion by 46,756 operating firms, which were mainly freelancers. In the *real estate sector,* there are 5,728 active enterprises with an annual turnover of EUR 0.64 billion. According to the 4178/2013 Greek law, no property can be sold, transferred, rented or mortgaged without having a "Declaration of Legal Property Status". However, if a property is illegal, it can be legalized by filling out a declaration form and paying the corresponding fee. According to the Greek Technical Chamber for the year 2015 only 262,988 from a total of 959,260 declared illegal properties are in the final qualification. The rest have to be captured and drawings have to be prepared.

In the *manufacturing branch*, there are 2,845 enterprises with 10+ employees, with a total turnover of EUR 48.25 billion. In the *mining industry*, where volumetric services are very common, in 2013 there were operating 369 enterprises, with a gross production value of EUR 657 million.

For many years, the Greek-owned fleet ranks first worldwide. According to the Hellenic Chamber of Shipping, the Greek *shipping industry* with 4,161 Greek-owned ships with over 1,000 gross tons represented in year 2009 the 13.2% of global fleet (in terms of registered tons). According to the Hellenic Statistical Authority, the registered ships in the Greek national registry in the year 2013 were 1.273 ships (ships over 100 gross tons). In year 2013, 339 ships were in repair, and this figure rose at 516 in the year 2016. Furthermore, Greece hosts about 17,000 yachts, of which 8,000 are longer than 12 meters.

Another segment, where the scanning project volume for terrestrial scanners is relatively large, is the *energy sector.* Despite the fact that PPC has only a few power production plants and substations for *electricity* production, and the local *oil industry* has only a few refineries in the country, however their premises are enormous, making them attractive customers. The *Asset Management market* is the only segment where ALLVIEW will offer Business-to-Customer services.

As we see it not easy to estimate precisely the market size in financial terms, however it is obvious that in all segments, constructions, architectural and engineering, manufacturing, shipping, and energy there is a large activity in terms of turnover and property items (production facilities, properties, ships).

4.2 INDUSTRY ANALYSIS

ALLVIEW's common competitor profile in Greece, are surveyors with a freelancer status. This information was obtained from a discussion with a laser scan reseller in northern Greece. The reseller has already sold four scanners in the Thessaloniki area, and he believes that the number of scanners that have been sold does not exceed 50 devices maximum. It has to be mentioned that the educational institutes are also in the clientele, and therefore around 45 scanners are in operation for business purposes.

Through an internet research, we found that except surveyors, also other type of companies are involved with laser scanning, such as the Mast Maritime Services, a consultancy service company in shipping industry, and the Hercules Mechanical Engineering Technologies, a propeller manufacturing company. The major competitor of ALLWIEW will be Metrica SA, a survey equipment reseller, with its daughter company Metrica-ISV. Metrica SA shows in its consolidated balance sheet a turnover of EUR 2.7 million for the year 2013 and EUR 3 million

for the year 2014. Another competitor is ASTROLABE ENGINEERING, a surveyor engineering office, which offers mobile and terrestrial scanning services, with a turnover of EUR 273,140 for the year 2012, and Topomet SA, a Surveying and Civil Engineering services company, with a turnover EUR 145,505 for the year 2014.

4.2.1 PORTER'S FIVE FORCES ANALYSIS

The competitiveness of the Greek Laser Scan Service industry has been evaluated with the Porter's Five Forces Model.

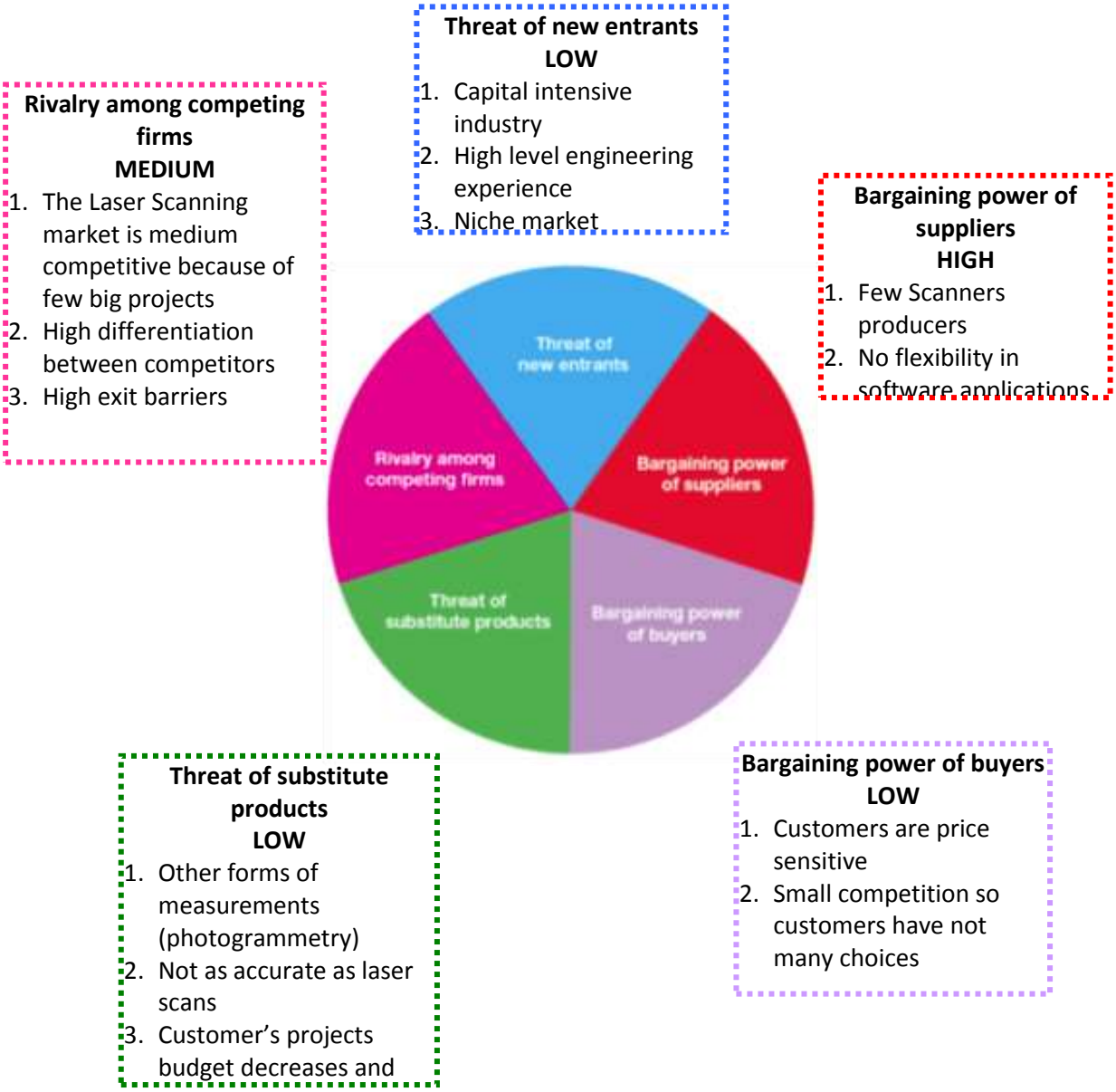


Figure 5: Porter's Five Forces industy analysis

In summary, it is inferred that the competitiveness in Greece, at present, is at a medium level. More specifically, the revelry among competitors is medium. While there are a few big projects in the market, there are also only a few firms that they can offer relevant services. The threat from new competition entrance in the industry is low because of the specific expertise that is required to serve the market. The Laser Scanning companies are facing high bargaining power from their suppliers because scanners and related software involve high-end technology that only a few companies can offer. On the other hand, customers have low power because of the limited number of the service companies. This information is useful in choosing the appropriate marketing strategy.

4.2.2 PEST ANALYSIS

In the following table the Political, Economic, Social and Technological factors that affect ALLVIEW are presented.

Political Factors	**Potential Impact**
Political stability of the environment in which the company operates. Economic growth and political stability are inherently connected. On one hand, the uncertainty associated with an unstable political environment may reduce the investment and the pace of economic development. On the other hand, poor economic performance may lead to government collapse and political unrest (Zahid H., 2014).	High
Government policies. If the government will introduce a new law, for example: BIM implementation for all new buildings and related manufacturing goods in the country, like it happens in the UK, this would highly affect company's operations.	High
Economic Factors	**Potential Impact**
Macro-economic data such as tax rates have a high impact on ALLVIEW's operations. In generally, markets require purchasing power, which depends on income, prices, savings, debt and credit ratings. ALLVIEW is directly affected by the customer's purchasing	High

power, because cost cutting in project budgets are a *must* nowadays.	
Sociological Factors	**Potential Impact**
Consumers are interested in new technology services. If some customers adopt the use of laser scanning aids, this may influence other potential customers in their decision to purchase ALLVIEW's services.	Medium
Ethical and heath issues are not relevant to ALLVIEW business.	Low
Technological Factors	**Potential Impact**
Technology advancement by competitors. ALLVIEW will follow technology's development in order to prevent competition to get an advantage.	Low
Potential for innovation in technologies other than Laser Scanning, such as photogrammetry or structured-light 3D scanner, that will outperform Laser Scanning.	Medium

4.2.3 COMPETITIVE ADVANTAGE STRATEGY

After analyzing and fully understanding the market and the industry in which ALLVIEW operates, the company will seek to gain a competitive advantage. According to Porter, there are three "base generic strategies" which allow firms to gain competitive advantage. These are: Cost Leadership, Differentiation and Focus. The *Cost Leadership* strategy emphasizes to the lowest cost operation in the industry, the *Differentiation* strategy pertains to the production of unique products, and the *Focus* strategy, which will be followed by the ALLVIEW, concentrates on small groups of costumers and niche markets (David F., 2013). Focus strategies are most effective when the company recognizes costumers' individual features and needs, and when competition is not able to meet them. In the Laser Scanning Service Industry, the main competitors are surveyors without or with little design and engineering experience. We believe that the holistic scanning-engineering approach is our

customer's unexpressed need, and therefore, ALLVIEW's engineering and software development background will be its competitive advantage in the Laser Scanning Industry.

As discussed in a previous section, Know-How is a key factor to enter into the Laser Services. Thus, a part of ALLVIEW's growth strategy is to collaborate with an already well-established company from abroad, especially from Germany or UK, where the Laser Scanning Service Industry market is already saturated. This firm, apart from the intended Know How should also have similar characteristics with our company, such as size, philosophy, professional mentality, mission etc., and should want to enter primary in Greece, and at a second stage in southeast Europe region. Through such collaboration, ALLVIEW's capabilities will be strengthened and also new products as Aerial or Mobile Laser Scanning could be offered in a small range.

Simultaneously, our existing professional network from past collaborations in the Albania, FYROM, Montenegro, Serbia and Bulgaria will be prepared to get involved in this new business, while finding business in non-traditional markets that many surveyors might not consider for growth opportunities will also contribute to our growth strategy.

5. THE MARKETING PLAN

5.1 THE PRODUCT

The product of ALLVIEW will be 3D Laser Scanning Services for Business-to-Business customers. Once the data have been captured with a terrestrial Laser Scanner, significant benefits are drawn for engineering tasks. Depending on the market segment the company serves, the offered services can be:

1. Creation of 2D CAD drawings and 3D models (reverse design). The main application is in buildings, industrial plants, roads, railway, tunnels, bridges, mines, underground chambers, archeology, shipment and other.
2. Measuring of shapes, surfaces and volume. The main application is in agriculture, excavation and mining, and high objects such as telecommunication masts.
3. As-build assessments, for asset management.
4. Movement monitoring and deformation assessments. The main application is in buildings and other structures near construction sites and mining operations, marine accidents.
5. Building Information Models (BIM). The main application is in architectural and infrastructure projects.

Despite the fact that ALLVIEW has no Know-How in laser scanning, the team's strong willingness to offer professional services enabled us to develop an internal workflow for the scanning process through research (see figure 6). There are six stages in the process line from project income to the project delivery. The first stage, Project planning, contains the determination of project's goals and objectives, Analysis of the area that will be scanned, specification of the objects to be scanned and the level of accuracy. In the second stage, Scanning execution, the scanner operator has to set up the scanner in terms of targeting, resolution and primary data filtering, set up the targets in strategic points, measure the targets and secure the acquired data.

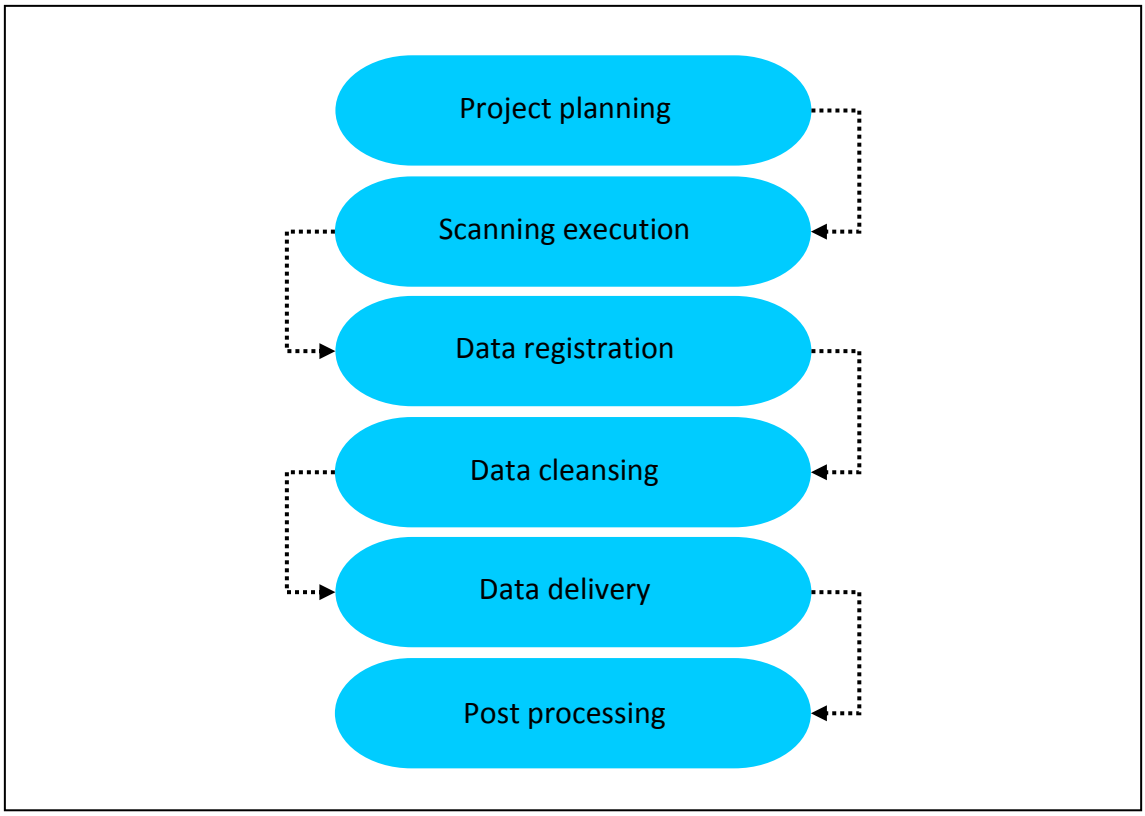


Figure 6: ALLVIEW's Business Model and value creation

In the third stage, Data registration, every scan will be georeferenced in a local or global coordinate system and combined with the other scans. After the registration of the scans the point cloud is created, but at this point it has a lot of false data (noisy data due to wind, or bad reflection), which are unnecessary for the project. The clearing of these data occurs in the fourth stage, the Data cleansing stage, after which, the data (point cloud) can be delivered to the client. In the fifth stage, Data delivery, a documentation report has to be created with all necessary for the client information about all the previous stages. If the customer needs further consultancy or engineering services, e.g., CAD drawings or 3D models, the project continues on stage six, the Post processing stage. ALLVIEW will seek to acquire projects with post processing needs, because in this area lies its competitive advantage.

5.2 MARKETING STRATEGY

5.2.1 SALES STRATEGY

ALLVIEW will separate Greece in regions and try to have in each region a wide base of potential customers and projects, in order to elaborate a marketing plan that works best in the region's clients.

ALLVIEW is going to categorize the customer's needs and analyze in detail the requirements of standard projects in order to create product packages.

ALLVIEW will offer high quality pre- and after- sale services. A lot of projects may have to undergo development before they can be realized, during which the potential costumers may need some help or consultancy in order to secure the project. The after sale services should be the firm's priority, because, especially in the construction sector, after the job has been done lots of changes arise.

ALLVIEW will contact every construction and engineering firm and inform them about laser scanning possibilities.

Finally, ALLVIEW will continuously adapt and adjust its marketing plan and strategy based on the market trends and customer needs.

5.2.2 ADVERTISING STRATEGY

ALLVIEW's advertising strategy will be in several ways with common characteristics. Except for the typical *cold calls* and *door-to-door presentation*, ALLVIEW will first develop an *online marketing strategy*, where the opportunities offered for strategy efficiency measurements are enormous. The scope of the online marketing strategy will be to generate business leads online. A business lead is a prospective consumer of a product or service that is created when an individual or business shows interest and provides his or her contact information (Investopedia). A lead can be created by content download of guides, books, case studies etc. By downloading the content, the user will provide the website with asked information about personal data (name, email etc) and business activities (segment they belong to). When someone provides their data, it is considered to be willing to get in conversation with ALLVIEW, and so they become closer to a client. Social media exploitation, like LinkedIn,

allows the company's content to be reached by a wide audience. If the audience/follower increases, it is an indicator of publishing valuable content.

Participation and/or visiting segment specific *exhibitions*. Fairs have the characteristic that both visitors and exhibitors are potential customers. Exhibitions provide a business network platform to build relationships and give the possibility for face-to-face interaction. Furthermore, in exhibitions the competition can be evaluated and new market trends can be recognized.

Creation of *day conferences* by segments allover Greece, in order to present potential usage of laser scanning and case studies of our services.

5.2.3 POSITIONING STRATEGY

Positioning is the act of designing the company's market offering and image to occupy a distinctive place in the minds of the target market (Kotler P., 2012).

In terms of positioning strategy ALLVIEW is a "hybrid" company because it acts as an existing company having inheritance from the owners present activities, and as a new company with a new for the Greek market engineering approach. In the construction and engineering segments the Company's first customers would be the existing customers from owners' present activities. In this case ALLVIEW acts as an existing company. In other segments, like industrial companies, maritime, mining, etc, the company will act as a startup company.

Having little knowledge about the competitor's market position it is very difficult to describe the positioning strategy at the time, because it generally depends on the existing strength or weaknesses of the brand and their competitive intent (Kotler P., 2012).

So ALLVIEW in the case of an existing enterprise will reposition it self in the existing position map by communicating to its customer the defections of the competition. For the new market segments, where ALLVIEW's customers and competitors are unknown in terms of business, the communication with the costumers will not be focused on selling a service but on transmitting the firm's vision and presenting a problem solving product.

5.2.4 PRICING STRATEGY

Laser scanning services are project based services and the pricing is not a simple cost plus margins approach. Generally, project based services are priced setting a fixed price for the entire project. That means that the contracting parties agree to a fix price to complete the project regardless of how many hours are actually spent. Less experienced companies with fixed price policy can lose money on project contracts because of underestimating the cost.

Pricing decisions need to reflect the strategic opportunities for the organization (Malcolm M., 2011). Kottler P. (2012) describes a six step procedure in setting pricing policy which ALLVIEW will follow in order to set prices.

In the 1st Step the company has to decide where it wants to position its market offering and set clear objectives for pricing police. There are five major objectives: survival, maximum current profit, maximum market share, maximum market skimming, and product quality leadership. Since the services are new in the market the maximum market skimming pricing strategy, in which prices start high and slowly drop over time, is the most proper choice for ALLVIEW.

In the 2nd Step, determining demand, it has to be understood how price sensitive customers are and what affect this sensitivity. Additionally the price elasticity of the marker has to be evaluated. From our engineering experience, the laser scanning market is price elastic.

In the 3rd Step, the costs have to be estimated. ALLVIEW costs are mainly in overhead costs and some variable project based cost like travel and accommodation expenses.

In the 4th Step, competitors' prices and cost have to be analyzed. ALLVIEW's costs are presented in the next chapter.

In the 5th Step, the company has to select a pricing method. The Going-rate pricing method fits best for ALLVIEW's activities. With this method the firm basically adopts competitors' prices, charging the same as, more than, or less than major competitor. When the industry is dominated by few strong competitors and their the competitive response is uncertain, smaller firms feels the going-rate price is a good solution because it is thought to reflect the industry's collective wisdom (Kottler P., 2012).

In the last step, Step 6, the company must select the final price by considering additional factors as the impact of other marketing activities, such as branding and advertising, and the impact of price on other parties in the supply chain.

ALLVIEW following Kottler's pricing strategy has evaluated the market, demand and competitors (mostly in Germany) and has set prices for its services which are presented in the next chapter.

6. FINANCIAL PLAN

For the Financial plan, some general assumptions have been made. The most important assumption is that the Greek economy will stabilized in the near future.

In the following chapters the expected business case scenario will be analyzed and a sensitivity analysis of the income's impact on the company's results will be presented.

6.1 OPERATION COSTS ANALYSIS

The new company will be registered in as Private Capital Company (IKE). This is a new form of organization and is suitable for small size companies. A company, in order to operate and cover its obligations has to be subsidized by its shareholders or by a loan from third parties such as banks or angels. ALLVIEW will raise its starting capital by equity from its shareholders.

For the estimation of the starting capital, first it has to be determined what is the necessary initial investment. The company will operate in the founders' existing office of 100m² in Serres. The office is equipped with furniture, PCs', software and printers for 6 working places. It has a complete internet and phone network, and DIN A1 and A3 plotters. For the following financial statements, the existing assets will not be taken into account. So, the investment needed to start the company is presented in the following table.

Investment	Estimated Value	Depreciation Length
Company set-up	2,000	
Laser Scanner	60,000	5 years
Special Software	70,000	5 years
Equipment insurance	2,000	
Two high powered PCs	4,000	2 Years
Working capital	75,400	
Total	**213,400**	

Table 1: Investment capital in Euros

In the table above, the working capital is equal with the company's total operating costs (overhead costs and cost of revenue) for the first six months of operation.

Overhead expenses is an accounting term that refers to all ongoing business expenses not including or related to direct labor, direct materials or third-party expenses that are billed directly to customers. Overhead must be paid for on an ongoing basis, regardless of whether a company is doing a high or low volume of business (Investopedia). In ALLVIEW's overhead expenses are:

- the remuneration for managerial positions, with EUR 27,000 per year for the CEO's position and EUR 23,400 for both COO's and CTO's position.
- the office's utilities (Electricity, Water, Cleaning, Phone, Internet etc) with EUR 6,000 for one year operation.
- Accounting and IT, which are outsourced services and have also to be charged as overhead cost. Typically, Accounting and IT firms, charge for small size companies EUR 3,600 and EUR 500 respectively, and
- Marketing expenses which are EUR 10,400 for the creation of one website, participation in two exhibitions, and organization of four day-conferences.

Usually in the income statement appears the term Cost of Good Sold. These costs are all direct costs related with production of the product sold by the company. Since ALLVIEW don't produce any products the term Cost of Good Sold is irrelevant. For service firms the equivalent term is Cost of Revenue, which for us it represents: wages, office supplies, and travel and accommodation costs.

- Wages: The gross compensation for the surveyor's position will be EUR 18,000, and for the office assistance position EUR 9,000 and for surveyor's assistance position EUR 9,000.
- Offices' supplies such paper, plotter ink, printer toners, petty cash etc. This expenses are EUR 2,500 per year.
- Travel costs such accommodation and fuel costs. The travel costs are linked to the number and the kind of the predicted won projects, which will be presented in a following section, and are EUR 14,500 per for the first Year.

Summarizing the above, it comes out that, for the first year of operation the company's total operating costs are EUR 150,800.

Operating costs	Value in Euros	
Overhead costs		***96,300***
Fixed cost		*81,800*
Utilities (phone, electricity, etc)	6,000	
Engineering compensations	73,800	
Equipment Insurance	2,000	
Marketing Expenses		*10,400*
Exhibitions	5,000	
Day conferences	2,400	
Website	3,000	
Outsourcing		*6,100*
IT Services	500	
Accounting	3,600	
Legal	2,000	
Cost of Revenue		***52,500***
Wages	36,000	
Office supplies	2,000	
Travel costs	14,500	
Total Costs		***150,800***

Table 2: ALLVIEW's first year operating costs

6.2 REVENUE ESTIMATION

After analyzing the Greek market we assume that during the first year of operation, and more specific in the second half of the year, the company is expected to win the following projects:

- 30 low complexity projects, e.g. point cloud creation for measurement purposes. Fits to freelancer architects, engineers and surveyors. Usually one day field operation. Average charged price EUR 750 per project.
- 20 medium complexity projects, e.g. point cloud creation and CAD drawings. Fits to all segments. Usually two day's field operation. Average charged price EUR 2,500 per project and finally

- 1 high complexity project, e.g. point cloud creation and 3D modeling. Fits to constructions, mining, industry, archeology, maritime etc. Usually three day's field operation. Average charged price EUR 20,000 per project.

Project Complexity	Project Duration	Projects Won	Project Price	Revenue
	Days	-	Euro	Euro
Simple	1	30	750	22,500
Medium	2	20	2,500	50,000
High	3	1	20,000	20,000
Total		**51**		**75,000**

Table 3: ALLVIEW's first year revenue estimation

It is obvious that the combinations of project complexity, field operation duration and post processing (engineering), is huge and it is very difficult to predict. For the expected scenario the one-year operation revenues are EUR 75,000.

Now the travel costs can be estimated by setting for fuel costs EUR 200 per project and accommodation cost EUR 100 per day for overnight projects. In this scenario we have EUR 10.200 in fuel costs and EUR 4,300 in accommodation cost (Appendix A).

For the following four years of company's operation we assume that sales (projects) will grow with a rate of 10% for the categories low and medium complexity projects, while for the category of high complexity projects, the company every year of operation will additionally win two more projects. The projected five-year, the income statement, the cash flow statement and the balance sheet as well as the revenues are presented in following.

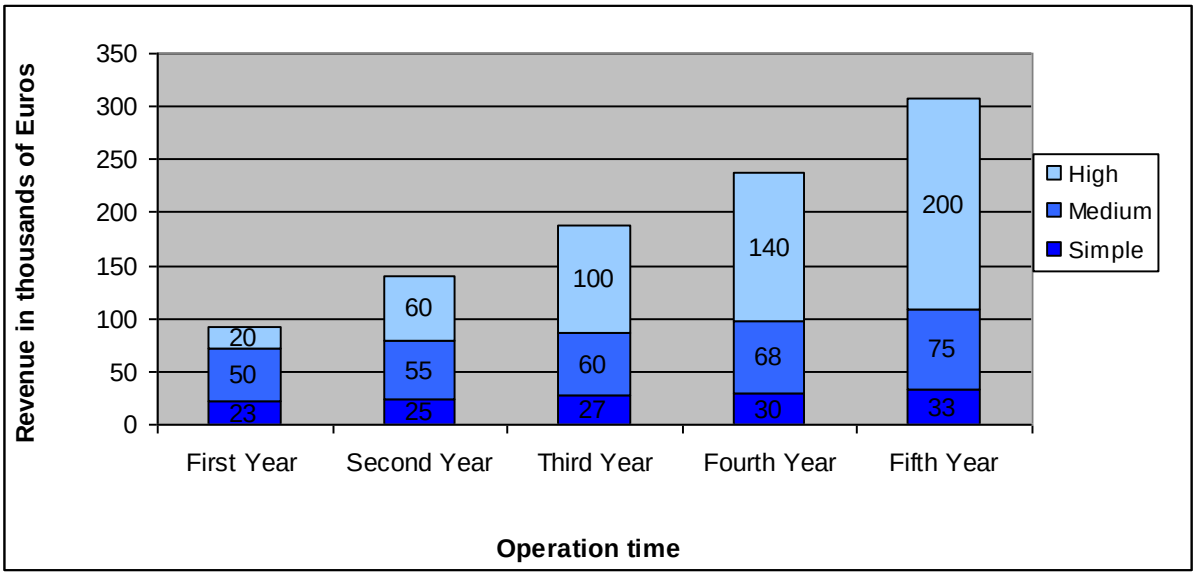


Figure 7: ALLVIEW's revenue projection for five years of operation by project complexity

Income Statement	Year 1	Year 2	Year 3	Year 4	Year 5
Revenues	92,500	139,750	187,000	237,500	308,000
Cost of Revenue	52,500	54,900	57,300	61,300	64,800
Gross margin	40,000	84,850	129,700	176,200	243,200
Fixed Expences	-81,800	-81,800	-81,800	-81,800	-81,800
Marketing Expenses	-10,400	-10,400	-10,400	-10,400	-10,400
Outsourcing Expences	-6,100	-6,100	-6,100	-6,100	-6,100
Rent expense	0	0	0	0	0
EBIDTA	-58,300	-13,450	31,400	77,900	144,900
Interest expense	0	0	0	0	0
Depreciation expense	-28,000	-28,000	-26,000	-26,000	-26,000
Net income before taxes	-86,300	-41,450	5,400	51,900	118,900
Income Tax 29%	0	0	1,566	15,051	34,481
Solidarity Tax 6%	5,550	8,385	11,220	14,250	18,480
Net income after taxes	*-80,750*	*-33,065*	*-7,386*	*22,599*	*65,939*

Table 4: ALLVIES's five-year projected income statements

Cash Flow Statement	II	Year 1	Year 2	Year 3	Year 4	Year 5
Operations activities						
Net Income	213,400	-80,750	-33,065	-7,386	22,599	65,939
Depreciation	0	28,000	28,000	26,000	26,000	26,000
Acc. Resivable	**0**	0	0	0	0	0
Acc. Payable	0	0	0	0	0	0
Wages Payable	0	0	0	0	0	0
Prepaid Insurance Star-Up	-4,000	-2,000	-2,000	-2,000	-2,000	-2,000
Taxes Payable	0	5,550	2,835	9,951	19,350	33,611
Interest Payable	0	0	0	0	0	0
Cash flow from O.A.	*209,400*	*-49,200*	*-4,230*	*26,565*	*65,949*	*123,550*
Investing activities	-134,000	0	0	0	0	0
Cash flow from I.A.	*-134,000*	*0*	*0*	*0*	*0*	*0*
Financing avtivities						
Loan Payable	0	0	0	0	0	0
Dividends	0	0	0	0	0	0
Cash flow from F.A.	*0*	*0*	*0*	*0*	*0*	*0*
Change in cash	*75,400*	*-49,200*	*-4,230*	*26,565*	*65,949*	*123,550*
Cash from previus	*0*	*75,400*	*26,200*	*21,970*	*48,535*	*114,484*
Cash for the next	*75,400*	*26,200*	*21,970*	*48,535*	*114,484*	*238,034*

Table 5: ALLVIEW's five-year projected cash flows

Balance Sheet at	II	Year 1	Year 2	Year 3	Year 4	Year 5
Current assets						
Cash	75,400	26,200	21,970	48,535	114,484	238,034
Accounts receivable		0	0	0	0	0
Insurance Prepaid	2,000	2,000	2,000	2,000	2,000	2,000
Total current assets	77,400	28,200	23,970	50,535	116,484	240,034
Propertyand equipment (cost)	134,000	134,000	134,000	134,000	134,000	134,000
Accumulated depreciation	0	-28,000	-56,000	-82,000	-108,000	-134,000
Intanglible assetes	0	0	0	0	0	0
Total assets	211,400	134,200	101,970	102,535	142,484	240,034
Current liabilities						
Accounts payable	0	0	0	0	0	0
Wages payable	0	0	0	0	0	0
Interest payable	0	0	0	0	0	0
Total current liabilities	0	0	0	0	0	0
Long-term debt	0	0	0	0	0	0
Shareholders' equity						
Common Stock	211,400	134,200	101,970	102,535	142,484	240,034
Retained earnings	0	0	0	0	0	0
Shareholders' equity	211,400	134,200	101,970	102,535	142,484	240,034
Total liabilities and shareholders' equity	211,400	134,200	101,970	102,535	142,484	240,034

II=Initial Investment

Table 6: ALLVIES's five-year projected balance sheets

The previous economic analysis of the expected scenario concludes that:

- Owners' equity will increase from EUR 211,400 to EUR 522,154 over the five years.
- No liabilities have been produced.
- The assumption that the Accounts Payable is zero is not a realistic assumption, but in this case, it gives us the information that for the first year, if clients owe the company more than EUR 1,600, the company will run out of cash.
- High complexity projects are firm's most valuable projects. For this reason, the marketing strategy will be readapted in order to focus on projects of this category.

ALLVIEW will continuously monitor financial ratios in order to control and evaluate company's health and operation productivity. The most important ratios are Return On Equity (ROE), Return on Assets (ROA), Total Asset Turnover. These ratios have been calculated and are shown in Appendix A. Other important ratios, such as the Utilization Ratio, which is the percentage of hours spent on billable projects versus the total number of hours worked, and the Overhead Ratio, allow companies to evaluate expenses as a percentage of income. The Utilization Ratio ratios can not be calculated in the current stage because of lacking the working hour's data.

6.3 SENSITIVITY ANALYSIS

A sensitivity analysis of the financial results that were previously presented will be performed, based on the worst and the best case scenario. Looking on the expenses, we see that the expenses are fixed (inelastic). For this reason, in both cases, any assumptions will be made only for the revenues. The assumptions for both scenarios for the first year are:

Worst-case scenario	Best-case scenario
Less Projects but with more charge for low and medium complexity projects	Same number of won projects with more charge for low and medium complexity projects
20 low complexity projects 15 medium complexity projects 0 high complexity projects	30 low complexity projects 20 medium complexity projects 1 high complexity projects
10 % year-to-year growth for low medium complexity projects and 2 projects every year in the high complexity project category	

The sensitivity analysis shows that in the worst-case scenario the company is driven in financial uncertainty. The company produce losses from the first year and even with an EUR 100,000 bank loan can only recover in the fifth year after having troubles with paying wages.

In the best-case of the scenario:

- Owners' equity will increase from EUR 211,400 to EUR 692,000 over the five years.

- No liabilities have been produced. That means that the initial investment could be lower.
- After the second year new investments can be made e.g., a new mobile scanner. This investment opens new opportunities for growth as mobile scanning is the market with the highest growth rates (see chapter 4.1.1). Such opportunities are not reflected in the income statement.
- After five years of operation, the initial investment has been paid back.

The projected balance sheets, income statements and cash flows both worst and best case scenario are presented in Appendixes B and C respectively.

All scenarios do not take into account that the founders also have additional income from engineering services they offer outside ALLVIEW. So if the company faces financial uncertainty, like in the case of the worst scenario, Managerial Expenses can be reduced or cut in order to give the company a healthy kick.

7. IMPLEMENTATION PLAN

For the implementation of the business plan, the team will start with an in deep marker and industry analysis. After four months the new company can take its legal form and can star to contact its potential customers. Marketing and Strategy preparation and implementation is an endless process.

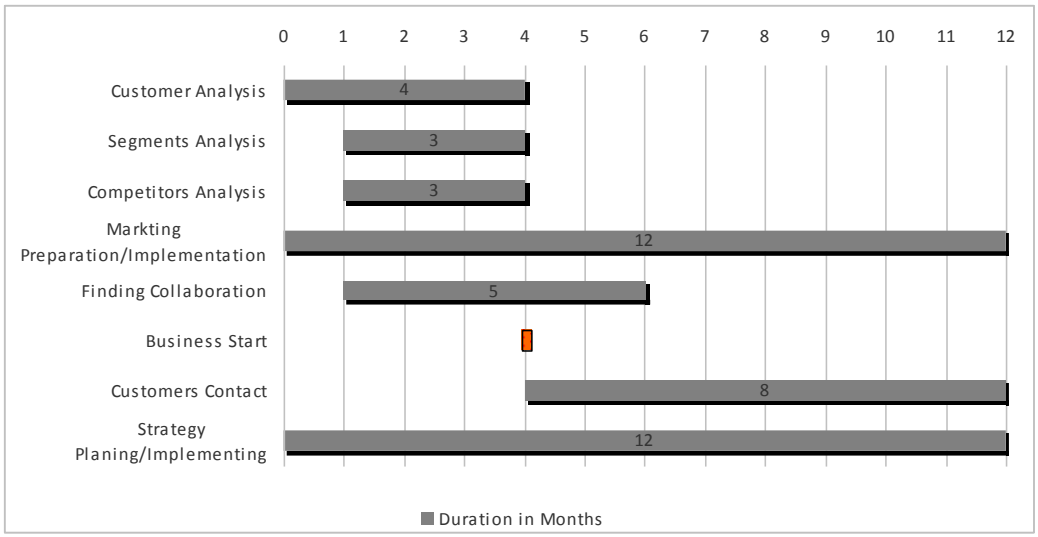


Figure 8: Gannt chart of the implementation strategy

8. CONCLUSIONS

As it has been presented at the beginning of the thesis, the ALLVIEW's founders discovered a business idea driven by the need to save operating costs (in our case time) on field operations. They came out with the 3D Laser Scanning method that would efficiently outplace the traditional survey techniques, and started to collect information and build know-how for this idea in December 2016. The founders have already discussed with firms in Germany in order to collaborate with them and gain quickly the ALLVIEW's competitive advantage. The engagement with this new business starting process gave the author the opportunity to utilize the knowledge and skills acquired from IHU, from various topics such as Business Strategy, Marketing Management, Entrepreneurship, Managerial Accounting and other. Additionally, in order to offer his managerial knowledge, the author decided to write

this business plan contributing to the pre-startup process and offering to his co-founders a significant decision tool.

In this business plan, a market analysis was performed, the market was segmented and possible customers were identified. The analysis showed that the market has a great potential for business growth. The identified market segments, where the company will primarily focus on, are construction companies and engineering services firms. The competition analysis showed that the Greek market is an emerging market in offering Laser Scanning Services, and the rivalry among the companies is at a medium level, which indicate a healthy industry environment. The financial figures show that if the first year's revenues exceed EUR 75,000, then the company could easily generate value for its founders over the upcoming years. The produced revenues are generated from the company's involvement in three main project categories: low, medium and high complexity projects. Low and medium complexity projects are low budget projects, with only laser scanning services and no other engineering consultancy involved. High complexity projects are projects, where engineering knowledge and experience is needed. The later are the firm's most valuable projects, and therefore the company's strategy formulation and marketing mix should focus on those projects.

Finally, an overall conclusion of this business plan is that the idea of starting to offer 3D Laser Scanning Services in Greece is feasible, profitable and it will guarantee good profits for the investors.

9. REFERENCES

Staiger R. (2003), Terrestrial Laser Scanning Technology, Systems and Applications, Germany, 2nd FIG Regional Conference Marrakech, Morocco, December 2-5, 2003

Malcolm McDonald – Pennie Frow – Adrian Payne, (2011), Marketing plans for services – A complete guide, 3rd Edition, Wiley.

Grasl O. (2013), A Business Model Blueprint for Professional Service Firms, Available at: https://www.business-prototyping.com/ograsl/2013/02/18/a-business-model-blueprint-for-professional-service-firms-the-value-logic/ [Accessed: 4 March 2016]

David F. (2013), Strategic Management – Concepts and Cases, 14th Edition, Pearson.

Kotler P. - Keller K. - Brady M. - Goodman M. - Hansen T., (2012), Marketing Management, 2nd Edition, Pearson.

Entrepreneur, (2016), The physical space where your business exists, Available at: https://www.entrepreneur.com/encyclopedia/location [Accessed: 29 May 2016]

Thoras M. (2015), 3D Scanning Market Size To Exceed USD 4.9 BillionBy 2020: Radiant Insights, San Francisco, Available at: https://globenewswire.com/news-release/2015/10/19/777136/0/en/3D-Scanning-Market-Size-To-Exceed-4-9-Blliion-By-2020-Radiant-Insights.html [Accessed: 29 May 2016]

Markets and Markets (2015), 3D Mapping and 3D Modeling Market by Application in 3D Mapping (3D Projection Mapping, Mapping and Navigation, and Others), by Vertical (Healthcare, Building and Construction, and Others), and by Geography - Forecast to 2020, Available at: http://www.marketsandmarkets.com/Market-Reports/3d-mapping-market-819.html [Accessed: 29 May 2016].

Markets and Markets (2015), LiDAR Market by Product (Aerial, Ground-based, and UAV LiDAR), Component, Application (Corridor Mapping, Engineering, Environment, ADAS, Urban Planning, Exploration, and Metrology), Services and Geography - Global Forecast to 2022, http://www.marketsandmarkets.com/Market-Reports/lidar-market-1261.html [Accessed: 29 May 2016].

Investopedia, Sales Lead Definition, Available at: http://www.investopedia.com/terms/s/sales-lead.asp#ixzz4ADu9qtom [Accessed: 30 May 2016].

Investopedia, Overhead Definition, Available at: http://www.investopedia.com/terms/o/overhead.asp#ixzz4AKDcGnme [Accessed: 30 May 2016].

Smartgeometrics (2014), 3D laser scanning, modeling market expanding Available at: http://www.smartgeometrics.com/blog/surveyors/3d-laser-scanning-modeling-market-expanding/ [Accessed: 29 May 2016]

Zahid H., (2014), Can political stability hurt economic growth? Available at: http://blogs.worldbank.org/endpovertyinsouthasia/can-political-stability-hurt-economic-growth [Accessed: 29 May 2016]

10. APPENDIXES

10.1 APPENDIX A: EXPECTED SCENARIO

Revenue projection for five years of operation

(Source for Figure 7)

Operation	Project Complexity	Project Duration	Projects Won	Project Duration	Project Price	Revenue
		Days	-	Days	Euro	Euro
First Year	Simple	1	30		750	22,500
	Medium	2	20	40	2,500	50,000
	High	3	1	3	20,000	20,000
	Total		**51**	**43**		**92,500**
Second Year	Simple	1	33		750	24,750
	Medium	2	22	44	2,500	55,000
	High	3	3	9	20,000	60,000
	Total		**58**	**53**		**139,750**
Third Year	Simple	1	36		750	27,000
	Medium	2	24	48	2,500	60,000
	High	3	5	15	20,000	100,000
	Total		**65**	**63**		**187,000**
Fourth Year	Simple	1	40		750	30,000
	Medium	2	27	54	2,500	67,500
	High	3	7	21	20,000	140,000
	Total		**74**	**75**		**237,500**
Fifth Year	Simple	1	44		750	33,000
	Medium	2	30	60	2,500	75,000
	High	3	10	30	20,000	200,000
	Total		**84**	**90**		**308,000**

Financial ratios

Ratios	Year 1	Year 2	Year 3	Year 4	Year 5
ROE	-38.2%	-24.6%	-7.2%	22.0%	46.3%
ROA	-38.2%	-24.6%	-7.2%	22.0%	46.3%
ROS	-87.3%	-23.7%	-3.9%	9.5%	21.4%
Total asset turnover	0.44x	1.04x	1.83x	2.32x	2.16x

10.2 APPENDIX B: WORST CASE SCENARIO

Operation	Project Complexity	Project Duration	Projects Won	Project Duration	Project Price	Revenue
		Days	-	Days	Euro	Euro
First Year	Simple	1	20		750	15,000
	Medium	2	15	30	2,500	37,500
	High	3	1	3	20,000	20,000
	Total		**36**	**33**		**72,500**
Second Year	Simple	1	22		500	11,000
	Medium	2	17	34	2,000	34,000
	High	3	2	6	20,000	40,000
	Total		**41**	**40**		**85,000**
Third Year	Simple	1	25		500	12,500
	Medium	2	19	38	2,000	38,000
	High	3	4	12	20,000	80,000
	Total		**48**	**50**		**130,500**
Fourth Year	Simple	1	21		500	10,500
	Medium	2	27	54	2,000	54,000
	High	3	5	15	20,000	100,000
	Total		**53**	**69**		**164,500**
Fifth Year	Simple	1	31		500	15,500
	Medium	2	23	46	2,000	46,000
	High	3	7	21	20,000	140,000
	Total		**61**	**67**		**201,500**

Income Statement	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Revenues	72,500	85,000	130,500	164,500	201,500
Cost of Revenue	48,500	50,200	52,600	56,500	57,900
Gross margin	24,000	34,800	77,900	108,000	143,600
Fixed Expences	-81,800	-81,800	-81,800	-81,800	-81,800
Marketing Expenses	-10,400	-10,400	-10,400	-10,400	-10,400
Outsourcing Expences	-6,100	-6,100	-6,100	-6,100	-6,100
Rent expense	0	0	0	0	0
EBIDTA	-74,300	-63,500	-20,400	9,700	45,300
Interest expense	0	-2,000	-2,000	-2,000	-2,000
Depreciation expense	-28,000	-28,000	-26,000	-26,000	-26,000
Net income before taxes	-102,300	-93,500	-48,400	-18,300	17,300
Income Tax 29%	0	0	0	0	5,017
Solidarity Tax 6%	-4,350	-5,100	-7,830	-9,870	-12,090
Net income after taxes	*-106,650*	*-98,600*	*-40,570*	*-8,430*	*24,373*

Cash Flow Statement	II	Year 1	Year 2	Year 3	Year 4	Year 5
Operations activities						
Net Income	211,400	-106,650	-98,600	-40,570	-8,430	24,373
Depreciation	0	28,000	28,000	26,000	26,000	26,000
Acc. Resivable	**0**	0	0	0	0	0
Acc. Payable	0	0	0	0	0	0
Wages Payable	0	0	0	24,600	0	0
Prepaid Insurance Star-Up	-4,000	-2,000	-2,000	-2,000	-2,000	-2,000
Taxes Payable	0	-4,350	-750	-7,080	-2,790	-4,283
Interest Payable	0	0	2,000	2,000	2,000	2,000
Cash flow from O.A.	*207,400*	*-85,000*	*-71,350*	*2,950*	*14,780*	*46,090*
Investing activities	-134,000	0	0	0	0	0
Cash flow from I.A.	*-134,000*	*0*	*0*	*0*	*0*	*0*
Financing avtivities						
Cash from Loan		100,000				
Loan Payable	0	0	-10,000	-10,000	-10,000	-10,000
Dividends	0	0	0	0	0	0
Cash flow from F.A.	*0*	*100,000*	*-10,000*	*-10,000*	*-10,000*	*-10,000*
Change in cash	*73,400*	*15,000*	*-81,350*	*-7,050*	*4,780*	*36,090*
Cash from previus	*0*	*73,400*	*88,400*	*7,050*	*0*	*4,780*
Cash for the next	*73,400*	*88,400*	*7,050*	*0*	*4,780*	*40,870*

II=Initial Investment

Balance Sheet at	II	Year 1	Year 2	Year 3	Year 4	Year 5
Current assets						
Cash	73,400	88,400	7,050	0	4,780	40,870
Accounts receivable		0	0	0	0	0
Insurance Prepaid	2,000	2,000	2,000	2,000	2,000	2,000
Total current assets	75,400	90,400	9,050	2,000	6,780	42,870
Propertyand equipment (cost)	134,000	134,000	134,000	134,000	134,000	134,000
Accumulated depreciation	0	-28,000	-56,000	-82,000	-108,000	-134,000
Intanglible assetes	0	0	0	0	0	0
Total assets	209,400	196,400	87,050	54,000	32,780	42,870
Current liabilities						
Accounts payable	0	0	0	0	0	0
Wages payable	0	0	0	24,600	24,600	24,600
Interest payable	0	0	0	0	0	0
Total current liabilities	0	0	0	24,600	24,600	24,600
Long-term debt	0	0	0	0	0	0
Shareholders' equity						
Common Stock	209,400	196,400	87,050	29,400	8,180	18,270
Retained earnings	0	0	0	0	0	0
Shareholders' equity	209,400	196,400	87,050	29,400	8,180	18,270
Total liabilities and shareholders' equity	209,400	196,400	87,050	54,000	32,780	42,870

II=Initial Investment

10.3 APPENDIX C: BEST CASE SCENARIO

Revenue production						
Operation	**Project Complexity**	**Project Duration**	**Projects Won**	**Project Duration**	**Project Price**	**Revenue**
		Days	**-**	**Days**	**Euro**	**Euro**
First Year	Simple	1	30		1,000	30,000
	Medium	2	20	40	3,000	60,000
	High	3	1	3	20,000	20,000
	Total		51	43		110,000
Second Year	Simple	1	33		1,000	33,000
	Medium	2	22	44	3,000	66,000
	High	3	3	9	20,000	60,000
	Total		58	53		159,000
Third Year	Simple	1	36		1,000	36,000
	Medium	2	24	48	3,000	72,000
	High	3	5	15	20,000	100,000
	Total		65	63		208,000
Fourth Year	Simple	1	40		1,000	40,000
	Medium	2	27	54	3,000	81,000
	High	3	7	21	20,000	140,000
	Total		74	75		261,000
Fifth Year	Simple	1	44		1,000	44,000
	Medium	2	30	60	3,000	90,000
	High	3	10	30	20,000	200,000
	Total		84	90		334,000

Income Statement	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Revenues	110,000	159,000	208,000	261,000	334,000
Cost of Revenue	52,500	54,900	57,300	61,300	64,800
Gross margin	57,500	104,100	150,700	199,700	269,200
Fixed Expences	81,800	81,800	81,800	81,800	81,800
Marketing Expenses	10,400	10,400	10,400	10,400	10,400
Outsourcing Expences	6,100	6,100	6,100	6,100	6,100
EBITDA	40,800	5,800	52,400	101,400	170,900
Depreciation expense	28,000	28,000	26,000	48,000	48,000
Net income before taxes	68,800	22,200	26,400	53,400	122,900
Income Tax 29%	0	0	7,656	15,486	35,641
Solidarity Tax 6%	6,600	9,540	12,480	15,660	20,040
Net income after taxes	*75,400*	*31,740*	*6,264*	*22,254*	*67,219*

Cash Flow Statement	II	Year 1	Year 2	Year 3	Year 4	Year 5
Operations activities						
Net Income	213.400	-75.400	31.740	6.264	22.254	67.219
Depreciation	0	28.000	28.000	28.000	48.000	46.000
Acc. Resivable	**0**	0	0	0	0	0
Acc. Payable	0	0	0	0	0	0
Wages Payable	0	0	0	0	0	0
Prepaid Insurance Star-Up	4.000	2.000	2.000	2.000	2.000	2.000
Taxes Payable	0	6.600	2.940	17.196	13.950	41.731
Interest Payable	0	0	0	0	0	0
Cash flow from O.A.	*209.400*	*42.800*	*60.680*	*49.460*	*82.204*	*152.950*
Investing activities	134.000	0	4000	100.000	0	0
Cash flow from I.A.	*134.000*	*0*	*4.000*	*100.000*	*0*	*0*
Financing avtivities						
Loan Payable	0	0	0	0	0	0
Dividends	0	0	0	0	0	0
Cash flow from F.A.	*0*	*0*	*0*	*0*	*0*	*0*
Change in cash	*75.400*	*42.800*	*56.680*	*50.540*	*82.204*	*152.950*
Cash from previus	*0*	*75.400*	*32.600*	*89.280*	*38.740*	*120.944*
Cash for the next	*75.400*	*32.600*	*89.280*	*38.740*	*120.944*	*273.894*

II=Initial Investment

Balance Sheet at	II	Year 1	Year 2	Year 3	Year 4	Year 5
Current assets						
Cash	75.400	32.600	89.280	38.740	120.944	273.894
Accounts receivable		0	0	0	0	0
Insurance Prepaid	2.000	2.000	2.000	2.000	2.000	2.000
Total current assets	77.400	34.600	91.280	40.740	122.944	275.894
Propertyand equipment (cost)	134.000	134.000	138.000	238.000	238.000	238.000
Accumulated depreciation	()	(28.000)	(56.000)	(84.000)	(132.000)	(178.000)
Intanglible assetes	0	0	0	0	0	0
Total assets	211.400	196.600	285.280	362.740	492.944	691.894
Current liabilities						
Accounts payable	0	0	0	0	0	0
Wages payable	0	0	0	0	0	0
Interest payable	0	0	0	0	0	0
Total current liabilities	0	0	0	0	0	0
Long-term debt	()	()	()	()	()	()
Shareholders' equity						
Common Stock	211.400	196.600	285.280	362.740	492.944	691.894
Retained earnings	0	0	0	0	0	0
Shareholders' equity	211.400	196.600	285.280	362.740	492.944	691.894
Total liabilities and shareholders' equity	211.400	196.600	285.280	362.740	492.944	691.894

APPENDIX D: POSITIONING MAP

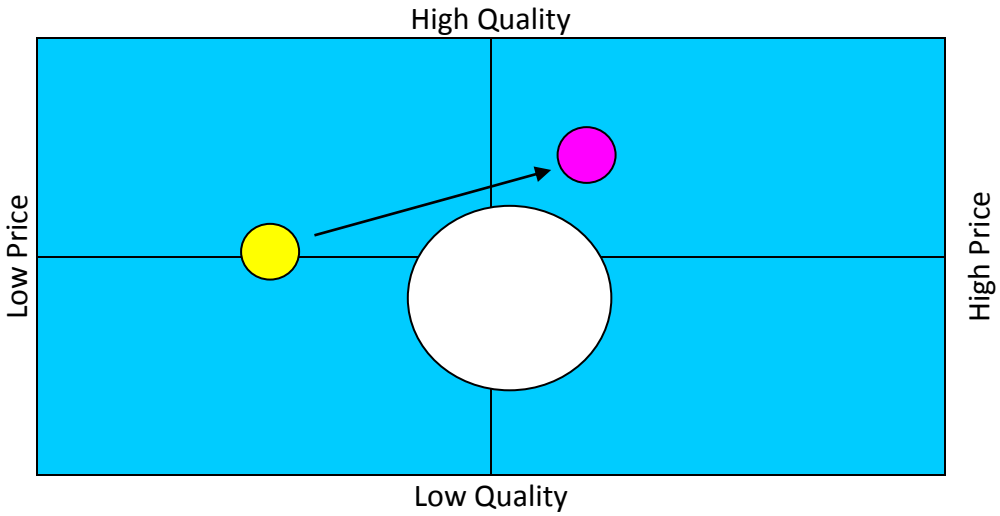


Figure 9: ALLVIEW's positioning map

Average competitors' area

Actual position

ALLVIEW's desire position

10.4 APPENDIX E: GLOBAL INDUSTRY TRENDS

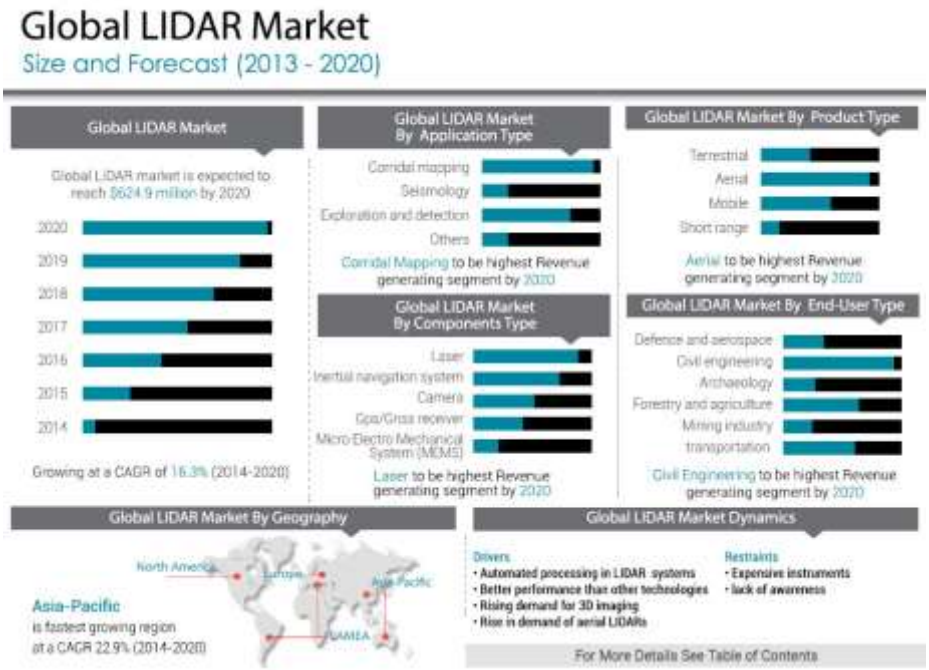


Figure 10: Global lidar market (source: https://www.alliedmarketresearch.com/lidar-market)

Figure 11: Global 3d scanning market (source: https://www.alliedmarketresearch.com/3D-scanning-market)

10.5 APPENDIX F: DATA OF THE GREEK INDUSTRY

Value in thousands of Euros **Year: 2013**

Branches of economic activity (Nace rev.2)	Number of enterprises	Turnover (without value added tax)	Production value	Value added at factor cost	Labor cost			Average annual employment		Total purchases of goods and services	Gross investment in tangible goods
					Total Personnel cost	Wages and salaries	Social security costs	Number of persons employed	Number of employees		
Real estate activities	5.728	640.062	653.329	383.273	71.907	56.970	14.937	8.580	4.287	287.631	529.845
Architectural and engineering activities; technical testing and analysis	46.756	2.244.848	2.070.813	970.258	221.076	176.502	44.574	58.026	12.599	1.298.098	50.440

Branches of economic activity (Nace rev.2)	Number of Enterprises	Number of Persons Employed	Personel Remuneration	Social Security Payments	Turnover from Construction Activities	Turnover from Building Activities	Turnover from Civil Engineer Activities	Total purchases of Goods and Services	Production Value	Added Value in Factor Costs	Investments
Building constructions	21.565	71.589	453.629	158.082	2.108.847	2.126.186	416.902	3.350.377	4.509.110	1.543.591	740.815
Infrastracture constraction	5.303	32.257	391.179	137.271	1.876.799	2.792	2.493.483	2.445.291	2.963.052	1.717.996	284.273
	26.868	103.847	844.808	295.353	3.985.645	2.128.978	2.910.386	5.795.667	7.472.162	3.261.587	1.025.088

Manifacturing banch for entaprises with 10+ persons	NUMBER OF ENTERPRISES	AVERAGE ANNUAL EMPLOYMENT	SALARIED EMPLOYEES & WAGE EARNERS	REMUNERATION OF PERSONS EMPLOYED	GROSS PRODUCTION VALUE	TOTAL CONSUMPTION	VALUE ADDED	SALES OF PRODUCTS	INVESTMENTS	TURNOVER
TOTAL	2.845	170.013	168	3.614.380	42.308.967	32.608.939	9.700.028	39.522.239	1.201.831	48.249.881

Table 7: Overview of the Greek economy by segment markets (Source: Hellenic Statistical Authority)

Number of enterprises, remunerated employement and gross production value, by mining branch for the year 2013.

Branches	Number of enteprises	Number of remunerated employees	Annual labour remuneration	Factor cost	Gross production value
Total(2)…….	**369**	**5.337**	**116.679.499**	**154.163.840**	**657.094.032**
Mining of lignte… Extraction of crude petroleum…… Support activities for petroleum and natural gas extraction……..	4	442	15.397.253	20.309.688	119.211.658
Mining of other non-ferrous	4	1630	28.248.678	39.072.826	140.091.602
Quarrying of ornamental and building stone, limestone, gypsum, chalk and slate……..	206	1.183	21.403.181	28.084.020	103.563.430
Operation of gravel and sand pits; mining of clays and kaolin……..	147	1.669	40.721.555	52.187.687	234.616.814
Mining of chemical and fertilizer minerals…… Other mining and quarrying n.e.c……..	8	413	10.908.832	14.509.619	59.610.528
Extraction of salt…….	…	…	…	…	…
Support activities for other mining and quarrying ……..	…	…	…	…	…

Table 8: Mining production in Greece (Source: Hellenic Statistical Authority)

Ships in the Greek national registry (ships over 100 gt)			
Registerd ships	Greek ships	Greek-owned ships	**Total**
Cargo ships	309	10	**319**
Tanker ships	419	26	**445**
Passegenr ships	352	49	**401**
Other ships	106	2	**108**
Total	**1.186**	**87**	**1.273**

Table 9: Greek fleet (Source: Hellenic Statistical Authority)

Activity of Greek ship repair industry: 2009 - 2015						
Year	Total		in Vessels		In repair bases	
	Ships	Register tons	Ships	Register tons	Ships	Register tons
2009.....	860	11.115.449	327	4.874.543	533	6.240.906
2010.....	773	9.078.421	296	3.533.320	477	5.545.101
2011.....	587	7.156.386	215	3.043.942	372	4.112.444
2012.....	485	4.851.563	158	1.586.937	327	3.264.626
2013.....	339	3.867.876	140	1.351.077	199	2.516.799
2014.....	366	4.592.523	173	1.877.565	193	2.714.958
2015.....	516	5.954.529	183	2.177.552	333	3.776.977

Table 10: Greek ship repair industry (Source: Hellenic Statistical Authority)